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ART UNIT	PAPER NUMBER
2736	7

DATE MAILED: 05/29/98

Please find below a communication from the EXAMINER in charge of this application.

see attached

Commissioner of Patents

Office Action Summary

Application No.

08/710,388

Applicant(s)

SINGHAL

Examiner

JOHN TWEEL

Group Art Unit

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—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on _____.
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 23-36 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 23-36 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☒ Claim(s) 7-14 are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 11 9(a)-(d).
- ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
- ☐ received in Application No. (Series Code/Serial Number) _____.
- ☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received: _____.

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s) 3 ☐ Interview Summary, PTO-413
- ☒ Notice of References Cited, PTO-892 ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948 ☐ Other _____

Office Action Summary

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DETAILED ACTION

Election/Restriction

1. Applicant's election with traverse of Group I in Paper No. 4 is acknowledged. The traversal is on the ground(s) that examination of the entire Application can be made without serious burden on the Examiner. This is not found persuasive because it is rather presumptuous for the Applicant to assume or even dictate exactly what burden the Examiner is to bear.

The requirement is still deemed proper and is therefore made FINAL.

Specification

2. The disclosure is objected to because of the following informalities:

- Page 1, Line 34: Several articles are missing from this sentence. For example, the phrase "such as computer, television, a user" could read --such as a computer or television, a user--.

- Page 2, Line 30: An article --a-- is missing before the word "cursor".

- Page 5, Line 15: There exists no period at the end of this sentence.

- Page 8, Line 1: The grammar of the sentence must be corrected to reflect plural or singular embodiments, as in --In a portable laptop...-- or --computer type embodiments--.

- Page 9, Line 9: The verb "bend" is in the incorrect form. The word --bent-- would make more sense.

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- Page 9, Line 10: The verb "exist" should be pluralized to --exists--.
- Page 12, Line 32: There exists an extraneous period after "quadrants".
- Page 13, Line 16: A period is needed between "cursor" and "The...".
- Page 16, Line 14: The word --cursor-- is misspelled here.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claim 34 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 34 recites the limitation "the annular switch activations" in Line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

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5. Claim 23 is rejected under 35 U.S.C. 102(e) as being anticipated by **Jarlance-Huang** [U.S. 5,668,574].

The remote control device adapted for use by a human to control and select from a screen taught by **Jarlance-Huang** includes the following claimed subject matter, as noted, 1) the claimed body adapted to be held by the human hand is met by the mainframe (No. 1) having two opposite sides fitting the palm and finger cushions, 2) the claimed multiple function thumb switch positioned on the top side of the body is met by the trackball (No. 3) as well as the enter key (No. 4a) mounted on the hand-held portion of the mainframe, the trackball and key adapted for activation by a human thumb as seen in Figure 2, 3) the claimed finger switch positioned on the bottom side of the body is met by the drag key (No. 4b) disposed on the opposite side for activation of the finger, 4) the claimed electronic means adapted to generate a signal is met by the circuit board that is mentioned in the specification (Col. 2, Lns. 13-15) that is of the well known art and therefore not shown in the drawings, and 5) the claimed transmitting means is met by the transmitter (No. 51) on the inside of the transparent shade (No. 5) for transmitting the signal from the electronic means.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 24, 25, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jarlance-Huang** in view of **Miyakawa** [U.S. 4,931,781].

For claim 24, the remote control device taught by **Jarlance-Huang** includes the claimed subject matter as discussed in the rejection of claim 23 above. However, nowhere in the reference is there any mention of an annular switch including four individual quadrant switches. All that is present is a central switch operated by the user's thumb.

The cursor movement control key switch taught by **Miyakawa** controls the movement of a cursor on a display screen. As seen in Figure 20A-20C, an annular switching device (No. 306) slides between four quadrant contacts (Nos. 308 and 310) to produce cursor control signals to the CPU (No. 9) which examines the terminals of said contacts. Commercially available switches may be used in place of the pressure balls (Nos. 307 and 309) and said spring contacts. Natural movement of the finger of an operator to move a single key allows generation of electrical signals representing more information. The obvious advantage of this configuration is the improved operability when the cursor must be moved in a plurality of directions to reach a desired position.

Since both **Jarlance-Huang** and **Miyakawa** pertain to cursor control apparatus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate an annular switch using four quadrant switches similar to that of Miyakawa for the

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purpose of increasing the operability and the versatility of the switching apparatus. Also, the compound switch structure enables many functions to be enacted with a single switch.

For claim 25, the claimed thumb base plate is met by the retaining plate that holds the plurality of spaced apart switch contacts (Nos. 308 and 310). The claimed thumb switch plate is met by said annular switching device (No. 306) of **Miyakawa** which is adapted to move relative to the thumb base plate, wherein the switch plate selectively contacts one of the contacts upon movement of said switch plate.

For claim 27, the CPU (No. 9) of **Miyakawa** includes logic converting means that respond to the embodiment shown in Figures 9 and 11A-D wherein the distance and speed of the cursor varies according to the degree of finger pressure on the quadrant switch and duration of contact.

8. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Jarlance-Huang** in view of **Ebina et al** [U.S. 4,812,829].

The device of **Jarlance-Huang** includes the claimed subject matter as disclosed in the rejection of claim 23 above. However, there exists no slidable finger switch plate which is adapted to be moved by a human finger.

The three-dimensional display device and method for pointing displayed three-dimensional image taught by **Ebina et al** comprises a display, input, and controller to manipulate a three-dimensional vector cursor in response to the pointing signal from the input. As seen in Figure 1,

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the input device (No. 105) includes a joystick (No. 108) as well as a slidable volume (No. 109) for controlling the velocity of the vector cursor. The velocity vector of the cursor is varied by manipulation of the joystick and slide volume to change the direction and speed, respectively. The object of the present invention is to provide a three-dimensional image on a two-dimensional plane and which can point to the three-dimensional image easily and precisely.

Since both **Jarlance-Huang** and **Ebina et al** pertain to cursor manipulation devices, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a slidable finger switch including the necessary contacts for the purpose of enabling easy and precise manipulation of the cursor in a flexible, three-dimensional environment.

9. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Jarlance-Huang** in view of **Evans et al** [U.S. 5,412,377].

The device taught by **Jarlance-Huang** includes the claimed subject matter as discussed in the rejection of claim 23 above. However, the reference does not include an electronic display window secured to the body which generates status information on said display.

The universal remote control program scheduling system taught by **Evans et al** includes an apparatus for scheduling operating sessions to be performed by a group of remotely controlled devices. An important feature of this invention is the display (No. 12) which may be a LCD display or other such system. This display is used for multiple reasons, such as a clock, the name of the key or function to be operated, error messages, and status information. This display device

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enables the user to be continually informed of status information to reduce the number of programming errors during operation of the device.

Since both **Jarlance-Huang** and **Evans et al** pertain to remote control manipulation, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include an electronic display window similar to that found in **Evans** for the purpose of continually notifying the user of system status and, as a result, minimizing the errors that could arise during apparatus manipulation and programming.

10. Claims 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bertram** [U.S. 5,602,597] (supplied by applicant) in view of **Miyakawa**.

For claim 29, the control mechanism taught by **Bertram** includes the following claimed subject matter, as noted, 1) the claimed display peripheral including a set of choices and a cursor is met by the display screen as seen especially in Figure 12 but also in Figures 13-18 that display a user interface that is based on user "levels", each of which are represented by a graphic and text display similar to a paper index card drawn on the screen. The "cards" are cascaded depending on how many "sub-levels" exist within a certain choice. These choices and sub-choices include a cursor (No. 135) being movable between the choices and sub-choices. 2) The claimed control device including a multiple function thumb switch is met by the input device (No. 22) which is manipulatable in a three-axis environment. However, although this input device meets the claim

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for a manipulatable center switch, there exists no annular switch to effect movement of the cursor between the choices and sub-choices on the display screen.

The cursor movement control key switch taught by **Miyakawa** controls the movement of a cursor on a display screen. As seen in Figure 20A-20C, an annular switching device (No. 306) slides between four quadrant contacts (Nos. 308 and 310) to produce cursor control signals to the CPU (No. 9) which examines the terminals of said contacts. Commercially available switches may be used in place of the pressure balls (Nos. 307 and 309) and said spring contacts. Natural movement of the finger of an operator to move a single key allows generation of electrical signals representing more information. The obvious advantage of this configuration is the improved operability when the cursor must be moved in a plurality of directions to reach a desired position.

Since both **Bertram** and **Miyakawa** pertain to remote cursor control apparatus in display environments, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate an annular switch using four quadrant switches similar to that of Miyakawa for the purpose of increasing the operability and the versatility of the switching apparatus. Also, the compound switch structure enables many functions to be enacted with a single switch.

For claim 30, the claimed first data file containing the selection choice data is met by the device system memory (No. 45) of **Bertram** that controls the display of visual images on the display device. The claimed first and second function means is read on the specification of **Miyakawa** that states that sixteen separate binary electrical signals may be used to enact different

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pointing functions. Therefore, the first eight binary signals may be used for maintenance of logic state based on switch activations and the second eight binary signals may be used for cursor movement control signals. The claimed second data file containing operating modes of the system is again met by the system memory (No. 45) which contains system RAM as well as screen RAM. The levels of choices seen in Figure 12 correspond to operating modes that are found in the system RAM under control programs. This system enables the display of a selection screen seen in Figure 15, enabling selection of a choice using said cursor (No. 135), and enabling the operating mode to be invoked.

For claim 31, Figures 12 and 15 of **Bertram** display the sub-choices, or “sub-levels”, represented by a figure partially hidden by the sub-choices.

For claim 32, the degree of pressure on the annular switch of **Miyakawa**, especially the embodiment seen in Figure 9, controls the rate of cursor movement.

11. Claims 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bertram** in view of **Miyakawa** and **Ebina et al.**

For claim 33, the control mechanism taught by **Bertram** includes the following claimed subject matter, as noted, 1) the claimed display peripheral including a set of choices and a cursor is met by the display screen as seen especially in Figure 12 but also in Figures 13-18 that display a user interface that is based on user “levels”, each of which are represented by a graphic and text display similar to a paper index card drawn on the screen. The “cards” are cascaded depending on

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how many "sub-levels" exist within a certain choice. These choices and sub-choices include a cursor (No. 135) being movable between the choices and sub-choices. 2) The claimed control device including a body and a multiple function thumb switch is met by the remote control (No. 20) having an input device (No. 22) which is manipulatable in a three-axis environment; also the remote control contains electronic means producing a signal which is transmitted wirelessly to the display device. However, although this input device meets the claim for a manipulatable center switch, this particular thumb switch is not specifically designed to be manipulated without physically separating the thumb from this switch.

The cursor movement control key switch taught by **Miyakawa** controls the movement of a cursor on a display screen. As seen in Figure 20A-20C, an annular switching device (No. 306) slides between four quadrant contacts (Nos. 308 and 310) to produce cursor control signals to the CPU (No. 9) which examines the terminals of said contacts. Commercially available switches may be used in place of the pressure balls (Nos. 307 and 309) and said spring contacts. Natural movement of the finger of an operator to move a single key allows generation of electrical signals representing more information. The obvious advantage of this configuration is the improved operability when the cursor must be moved in a plurality of directions to reach a desired position.

Since both **Bertram** and **Miyakawa** pertain to remote cursor control apparatus in display environments, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate an annular switch using four quadrant switches similar to that of Miyakawa for the purpose of increasing the operability and the versatility of the switching

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apparatus. Also, the compound switch structure enables many functions to be enacted with a single switch. Another feature not found in either reference is an index finger switch positioned on the bottom side operated by the sliding motion of the finger.

The three-dimensional display device and method for pointing displayed three-dimensional image taught by **Ebina et al** comprises a display, input, and controller to manipulate a three-dimensional vector cursor in response to the pointing signal from the input. As seen in Figure 1, the input device (No. 105) includes a joystick (No. 108) as well as a slidable volume (No. 109) for controlling the velocity of the vector cursor. The velocity vector of the cursor is varied by manipulation of the joystick and slide volume to change the direction and speed, respectively. The object of the present invention is to provide a three-dimensional image on a two-dimensional plane and which can point to the three-dimensional image easily and precisely.

Since both **Jarlance-Huang** and **Ebina et al** pertain to cursor manipulation devices, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a slidable finger switch including the necessary contacts for the purpose of enabling easy and precise manipulation of the cursor in a flexible, three-dimensional environment.

For claim 34, the claimed first data file containing the selection choice data is met by the device system memory (No. 45) of **Bertram** that controls the display of visual images on the display device. The claimed first and second function means is read on the specification of **Miyakawa** that states that sixteen separate binary electrical signals may be used to enact different pointing functions. Therefore, the first eight binary signals may be used for maintenance of logic

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state based on switch activations and the second eight binary signals may be used for cursor movement control signals. The claimed second data file containing operating modes of the system is again met by the system memory (No. 45) which contains system RAM as well as screen RAM. The levels of choices seen in Figure 12 correspond to operating modes that are found in the system RAM under control programs. This system enables the display of a selection screen seen in Figure 15, enabling selection of a choice using said cursor (No. 135), and enabling the operating mode to be invoked.

For claim 35, Figures 12 and 15 of **Bertram** display the sub-choices, or “sub-levels”, represented by a figure partially hidden by the sub-choices.

For claim 36, the degree of pressure on the annular switch of **Miyakawa**, especially the embodiment seen in Figure 9, controls the rate and duration of cursor movement. The center switch of **Bertram** identifies the selection.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Atkinson [U.S. 4,931,783] displays a menu bar having several sub-choices that can be manipulated to change the display size.

Darbee [U.S. 5,228,077] teaches a remotely upgradable remote control having a display screen.

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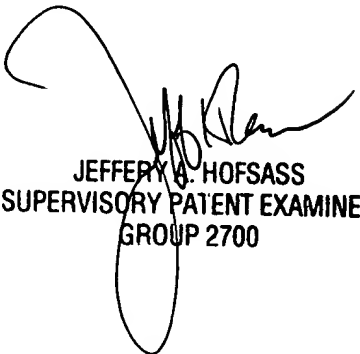
Paley [U.S. 5,506,605] discloses a three-dimensional mouse with opposite switch locations.

13. Any inquiry concerning this communication should be directed to Examiner John Tweel at telephone number (703) 308 7826. The examiner can normally be reached on Monday-Thursday, 8:30a-5:00p. The examiner can also be reached on alternate Fridays.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeff Hofsass, can be reached on (703) 305 4717. The fax phone number for this group is (703) 305 3988.

John Tweel

April 27, 1998


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